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L1: Entry 1 of 1 File: USPT Jan 23, 2001

US-PAT-NO: 6177282
DOCUMENT-IDENTIFIER: US 6177282 B1

TITLE: Antigens embedded in thermoplastic

DATE-ISSUED: January 23, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
McIntyre; John A.	Indianaopolis	IN	46220-5006	N/A

US-CL-CURRENT: 436/518; 436/532, 436/533

CR

WO95/31187
WO97/13502
US Pat 5,756,907
US Pat 5,436,009 #

CLAIMS:

What is claimed is:
1. A binding assay for detecting the presence of a binding partner comprising; contacting a sample suspected of containing the binding partner with a binding agent-containing monolithic solid material having a binding agent evenly dispersed throughout said solid material, wherein the binding agent is not chemically coupled to the solid material, said binding partner being bindable to the binding agent, wherein said sample is contacted for a sufficient time and under sufficient conditions to permit the binding partner to bind to the binding agent, and detecting the presence or absence of binding of the binding partner to the binding agent, wherein said binding agent is a phospholipid.
2. A binding agent-containing monolithic solid material having a binding agent evenly dispersed throughout a monolithic solid material, wherein the binding agent is not chemically coupled to the monolithic solid material, wherein the binding agent comprises a lipid or phospholipid, and wherein the binding agent-containing monolithic solid material binds to antibodies associated with a condition selected from the group consisting of systemic lupus erythematosus, venus thrombosis, recurrent arterial thrombosis, recurrent spontaneous abortion, thrombocytopenia, chorea, epilepsy, livedo, idiopathic pulmonary hypertension, rheumatological conditions and collagenous diseases.
3. A binding assay for detecting the presence of a binding partner comprising; contacting a sample suspected of containing the binding partner with a binding agent-containing monolithic solid material having a binding agent evenly dispersed throughout said solid material, wherein the binding agent is not chemically coupled to the solid material, said binding partner being bindable to the binding agent, wherein said sample is contacted for a sufficient time and under sufficient conditions to permit the binding partner to bind to the binding agent, and detecting the presence or absence of binding of the binding partner to the binding agent, wherein the assay is performed for the detection of phospholipid antigens.
4. A binding assay for detecting the presence of a binding partner comprising; contacting a sample suspected of containing the binding partner with a binding agent-containing monolithic solid material having a binding agent evenly dispersed throughout said solid material, wherein the binding agent is not chemically coupled to the solid material, said binding partner being bindable to the binding agent, wherein said sample is contacted for a sufficient time and under sufficient conditions to permit the binding partner to bind to the binding agent, and detecting the presence or absence of binding of the binding partner to the binding agent, wherein the assay is performed for the detection of phospholipid binding proteins.
5. A binding assay for detecting the presence of a binding partner comprising;

contacting a sample suspected of containing the binding partner with a binding agent-containing monolithic solid material having a binding agent evenly dispersed throughout said solid material, wherein the binding agent is not chemically coupled to the solid material, said binding partner being bindable to the binding agent, wherein said sample is contacted for a sufficient time and under sufficient conditions to permit the binding partner to bind to the binding agent, and detecting the presence or absence of binding of the binding partner to the binding agent, wherein the assay is performed for the detection of phospholipid antigens or phospholipid binding proteins associated with a condition selected from the group consisting of systemic lupus erythematosus, venus thrombosis, recurrent arterial thrombosis, recurrent spontaneous abortion, thrombocytopenia, chorea, epilepsy, livedo, idiopathic pulmonary hypertension, rheumatological conditions and collagenous diseases.

6. A binding agent-containing monolithic solid material having a binding agent evenly dispersed throughout a monolithic solid material, wherein the binding agent is not chemically coupled to the monolithic solid material, wherein the binding agent comprises a lipid or phospholipid, and wherein the assay is performed for the detection of phospholipid binding proteins associated with a condition selected from the group consisting of systemic lupus erythematosus, venus thrombosis, recurrent arterial thrombosis, recurrent spontaneous abortion, thrombocytopenia, chorea, epilepsy, livedo, idiopathic pulmonary hypertension, rheumatological conditions and collagenous diseases.

DOCUMENT-IDENTIFIER: US 5102872 A
TITLE: Controlled-release formulations of interleukin-2

BSPR:
Accordingly, a peptide or protein agent should either have a long half-life in the serum, or should be administered using some form of controlled release device. Such devices as used for other veterinary agents are typically either membrane-type devices (having a central reservoir containing the active compound, surrounded by a rate-controlling membrane), or monolithic-type devices (typically a solid matrix, e.g., of silicone rubber, having the active compound dispersed throughout). Design of such devices must balance the factors of release rate, completeness of delivery, and induction period, as well as biocompatibility and acceptability for use in food animals.

DEPR:
Formulations of the invention may be administered alone or as a supplement to vaccines used to protect against stress-related diseases.

DEPL:
The animals did not receive standard BRDS-related vaccination. They were, by chance, subjected to severe snow and cold weather during their first days on the feedlot, and accordingly, were placed on silage feed early on. The health of the animals was observed on a daily basis by personnel blind to experimental treatment. The animals were weighed at regular intervals. Table 1 reports the results of the treatment as of day 21.

☐ 3. Document ID: US 4808314 A

L3: Entry 3 of 4 File: USPT Feb 28, 1989

DOCUMENT-IDENTIFIER: US 4808314 A
TITLE: Method for reducing bacterial endotoxin contamination in solutions of macromolecules

BSPR:
The present invention contemplates a method for reducing the acterial endotoxin concentration in a solution containing a biologically useful macromolecule comprising the following steps: (a) admixing a dialyzable surfactant with a biologically useful macromolecule that contains a contaminating amount of endotoxin in an aqueous medium to form an aqueous admixture. The surfactant so utilized has a critical micelle concentration (cmc) of at least about 0.2 weight percent or at least about 5 millimolar, and preferably at least about 0.5 weight percent or at least about 8 millimolar, is non-pyrogenic, is physiologically tolerable, is non-denaturing, and exhibits no net electric charge at the pH value of the aqueous admixture. The surfactant is used at a concentration greater than that of its cmc. (b) That aqueous admixture is contacted with a solid phase water-insoluble endotoxin sorbant containing an endotoxin sorbing agent such as polymyxin B linked to a solid matrix, which can be monolithic or particulate, to form a solid-liquid phase admixture. (c) The contact of the solid-liquid phase admixture is maintained, preferably substantially continually as by agitation or flow, for a predetermined time period sufficient for the endotoxin to bind to the solid phase sorbant and thereby form a second solid-liquid phase admixture whose liquid phase contains water, the macromolecule, and a reduced endotoxin to macromolecule weight ratio as compared to that ratio that was present in the first solid-liquid phase admixture. The second solid-liquid phase admixture can also contain surfactant. (d) The solid and liquid phases of the second solid-liquid phase admixture are separated. (e) The surfactant is dialyzed from the liquid phase at a time no earlier than step (c); i.e., either (i) during the maintenance step, or (ii) after the separation of solid and liquid phases, to

provide a liquid phase that is substantially free of surfactant. And (f), thereafter recovering the surfactant-free liquid phase that contains the macromolecule and contains a reduced concentration of contaminating endotoxin at a macromolecule concentration utilized for in vivo administration.

DRPR:
In a second variant, the solid sorbant is monolithic with the endotoxin sorbing agent affixed to one or more surfaces. Typically, a monolithic sorbant is in the form of one or more sheets or webs, or a surface of a tube or other vessel. Here, the contacting and maintenance steps are again carried out by passage of the aqueous medium over the sorbant-containing surface and is followed by dialysis.

DRPR:
Examining the above embodiments and their variants further, in the first embodiment, a biologically useful macromolecule containing a pyrogenic or contaminating amount of endotoxin is admixed with a dialyzable surfactant in an aqueous medium to form an aqueous admixture. That admixture is contacted with a particulate or monolithic solid phase endotoxin sorbant (first and second variants, respectively) that contains an endotoxin sorbing agent or agents linked or otherwise affixed to a solid matrix to form a first solid-liquid phase admixture. That contact is maintained for a predetermined time period sufficient for the endotoxin to be bound, thereby forming a second solid-liquid phase admixture. The resulting solid and liquid phases are separated, and the liquid phase containing the surfactant and macromolecule is dialyzed to remove the surfactant and provide an aqueous solution of the macromolecule.

DRPR:
Numerous types of biologically useful macromolecules can be separated from contaminating endotoxin by the method of this invention. For example, the method can be used to decontaminate endotoxin-contaminated solutions of proteins, including enzymes such as catalase, immunoglobulins such as mouse or human IgG, hormones such as insulin, thyroglobulin, and pituitary hormones, and other proteins found in the body such as growth factors, interferons, clotting factors and the like. The invention is useful to separate contaminated solutions of cell wall proteins derived from gram negative bacteria, viral envelope proteins, and other macromolecules useful in the preparation of vaccines. The invention is also useful to separate other macromolecules that do not contain essential lipid cofactors such as nucleic acids, and the like.

DRPR:
Sepharose 4B is utilized herein as an eeemplary solid phase matrix. However, additional particulate and monolithic solid phase matrices are also useful herein. Exemplary of such matrices are Sepharose 6B, glass beads, and the inner and outer surfaces of hollow fibers as are useful in hemodialysis or ultrafiltration (as are discussed further hereinafter), and the various matrices described in U.S. Pat. Nos. 4,491,660, 4,381,239, and 3,897,309 that are discussed hereinbefore, as well as the amine-reactive polymers described in U.S. Pat. Nos. 3,597,220, 3,597,221, 3,597,351, 3,650,900, and 3,650,901, all of whose disclosures are incorporated by reference.

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

☐ 4. Document ID: US 4186184 A

L3: Entry 4 of 4 File: USPT Jan 29, 1980

DOCUMENT-IDENTIFIER: US 4186184 A
TITLE: Selective administration of drug with ocular therapeutic system

DEPR:
As used for the purpose of this invention, the term "drug" embraces any drug that can be administered by the ocular system 10 to the drug receptor site of the eye to produce a local or a systemic physiologic or pharmacologic beneficial effect, according to the specific method of release of the invention. The local effect can be produced internally in the eye, or the local effect can be produced at a specific site in the eye cavity, for example on the interior surface of the upper or lower eyelid. The systemic drug is introduced into the circulatory system to produce a beneficial effect at a site remote from the eye. Exemplary drugs include antibiotics such as tetracycline, chlortetracycline, bacitracin, neomycin, polymyxin, gramicidin, cephalexin, oxytetracycline, chloramphenicol, kanamycin, gentamycin, erythromycin and penicillin; antibacterials such as sulfonamides, sulfadiazine, sulfacetamide, sulfamethiazole and sulfisoxazole, nitrofurazone and sodium propionate; antivirals including idoxuridine and interferon; antiallergenics such as antazoline, methapyriline, chlorpheniramine, phyilamine and prophenpyridamine; anti-inflammatories such as hydrocortisone, hydrocortisone acetate, dexamethasone, dexamethasone 21-phosphate, fluocinolone, medrysone, prednisolone acetate, fluoromethalone, betamethasone, and triaminolone; decongestants such as phenylphrine, naphazoline and tetrahydrozoline; miotics and anticholinesterase such as pilocarpine, physostigmine, eserine, carbachol, di-isopropyl fluorophosphate, phospholine iodine, and demecarium bromide; mydriatics such as atropine sulfate, cyclopentolate, homatropine, scopolamine, tropicamide, eucatropine, and hydroxyamphentamine; sympathoimimetics such as ephinephrine; immunological drugs such as vaccines and immune stimulants; and hormonal agents such as estrogens, estradiol, progestational, progesterone, insulin, calcitonin, parathyroid hormone and peptide, vasopressin, hypothalmus releasing factor; and other drugs such as prostaglandins, antiprostaglandins, and prostaglandin precursors. Drugs used in osmotic systems are preferrably present in an osmotically effective form such as ephedrine hydrochloride, ephedrine sulfate, pilocarpine hydrochloride, pilocarpine nitrate, calcium pantotheate, prednisolone sodium phosphate and the like. The above drugs, and other locally and systemically acting drugs, and their effective dose coupled with other physiological and pharmacological information are described in Physicians Desk Reference, Drug Classification Index, and entries cited thereon, 24th Edition, 1969, published by Medical Economics, Inc., Oradell, New Jersey; in Handbook or Ocular Therapeutics and Pharmacology, by Ellis and Smith, pages 159 to 240, 1973, published by C. V. Mosby Co., St. Louis, Mo., and in The Pharmaceutical Bases of Therapeutics, by Goodman and Gilman, 14th Edition, 1970, published by the Macmillan Co., London. The drugs administered from the ocular system can be in various diffusional forms such as esters, ethers, amides, and the like, which have desirable retention, release or solubility characteristics, and which are easily hydrolyzed by body pH, enzymes or metabolic processes, can be used for the purpose of the invention.

CLPR:
16. In a method for administering drug into systemic circulation according to claim 15, wherein the module is a monolithic structure formed of a solid polymeric material with the drug confined therein.

Generate Collection

Terms	Documents
l2 and vaccin$	4

Display 50 Documents, starting with Document: 4

Display Format: KWIC Change Format

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Search Results - Record(s) 1 through 9 of 9 returned.

☐ 1. Document ID: US 6177282 B1

L21: Entry 1 of 9 File: USPT Jan 23, 2001

DOCUMENT-IDENTIFIER: US 6177282 B1
TITLE: Antigens embedded in thermoplastic

ABPL:
The invention relates to an immunoassays, binding assays, solid phase substrates (12) and other devices with an antigen or antibody or ligand or receptor (11) embedded into a solid phase substrate (12). The antigen or antibody is mixed with a molten thermoplastic and formed into the solid phase substrate (12).

BSPR:
While prior art methods for coating the plastic surfaces with PL antigens have been less than fully satisfactory, the present invention avoids the coating step which resulted in variations in coating, stability on the surface and inconsistent results. Antigen loss as noted above is eliminated as the antigen is embedded into the solid phase matrix. The present invention mixes the antigen with a thermoplastic material heated to a molten state. The mixture is then used in conventional injection and blow molding to form the solid phase. The process provides for an even distribution and constant concentration of the PL antigen in the plastic material.

DEPR:
One embodiment of the present invention relates to the incorporation of binding agents into solid phase substrates, particularly plastic materials, the products produced thereby (such as tubes, beads and multi-well plates), and binding assays using these products. While some specified examples involve an ELISA, the present invention is not limited to any particular immunoassay format provided that at least one of the ligand, receptor, antibody, antigen or hapten is embedded in a solid phase during the immunoassay. Indeed, the present invention may be used for other binding assays, some of which are exemplified below.

DEPR:
The physical steps involved include mixing the binding agent with a material which is to become the solid phase or substrate. When the material is a thermoplastic, the binding agent to be embedded is mixed with a small plastic pellet stock and heated until molten or the binding agent may be mixed with the molten plastic itself. Uniformity in mixing the binding agent and the plastic pellets was enhanced due to static electricity generated during mixing which caused a more even coating on the plastic pellets and a through distribution throughout the mixture. The molten plastic is then formed into a plastic substrate of any desired shape. The binding agent is distributed throughout the plastic substrate. No chemical reaction need occur between the plastic substrate and the binding agent, nor is a chemical reaction particularly desirable. Examples of suitable thermoplastic polymers include polystyrene, polyethylene, polypropylene, polycarbonate, polyethylene terephalate, polyester (e.g. Dacron), polyurethane, polyolefin, polyvinyl alcohol, PVP and other polymers used in contact with tissues or biological fluids.

DEPR:
Other plastic materials such as thermosetting polymers may be used. In such a situation, the binding agent is mixed with the monomers or oligomers which are then heated to polymerize or cross-link the composition, thereby entrapping the binding agent. The plastic substrate may also be made by chemical, ultraviolet

light or other non-thermal polymerization methods as well. A variety of hardeners, clarifiers, and plasticizers may be added to give the substrate its desired physical properties. In such a situation, the binding agent may be mixed with a substrate forming material (e.g. monomers) prior to or simultaneous with the addition of the hardening agent or the polymerization agent. Examples include epoxies and some of the same polymers listed above under thermoplastic polymers.

DEPR:
While the term "plastic" usually refers to organic polymers having certain physical properties in the present invention. In the present invention, any material which was fluid prior to mixing the binding agent and forms a solid material afterwards is acceptable. Thus, the term "plastic-substrate" need not even be made of what is conventionally called plastic but may include foams, rubbers, gels, etc. provided that the solid material is formed into an acceptable solid phase for a binding assay. Other examples include, calcium alginate, potassium carrageen, gelatin/collagen which is hardened, natural gums, etc. Non-polymers may also be used such as waxes, alloys, ceramics, low melting point glass, emulsions, particularly when later dried to remove water or other solvent. Also, a solid material may be mixed with an antigen and a solvent and then the solvent evaporated to leave antigen embedded in solid material. A suitable solvent as well as a good oil phase in an emulsion is a volatile silicone (i.e. cyclomethicone). Even impractical examples, such as water cooled to form ice provided that temperatures below freezing are maintained, may be used.

DEPR:
For example, certain polystyrenes become molten at a relatively low temperature. These temperatures are compatible with binding agents made of polynucleotides, many proteins, lipids and most organic compounds. Indeed, certain polystyrenes become molten at temperatures only twice as hot as those used in the preparation of antigens prior to running them in a polyacrylamide gel, particularly the heat denaturing step. The temperature at which thermoplastic polystyrene becomes molten may be further lowered by the addition of various chemicals. The modification of the physical and optical properties of plastic materials is known per se. The weight amount of binding agent being added is trivially small compared to the weight amount of plastic and therefore is unlikely to significantly affect its properties. The same can be said for using other substrate materials.

☐ 2. Document ID: US 6159681 A

L21: Entry 2 of 9 File: USPT Dec 12, 2000

DOCUMENT-IDENTIFIER: US 6159681 A
TITLE: Light-mediated method and apparatus for the regional analysis of biologic material

BSPR:
Laser capture microdissection (LCM) is a recently described method that utilizes a transparent thermoplastic film (ethylene vinyl acetate, EVA) to capture cells from glass slides under direct visualization (see Emmert-Buck et al., Science 274:998, 1996). EVA is applied to the surface of a tissue section placed on a glass slide and irradiated with a carbon dioxide laser using infrared radiation. The laser energy is absorbed by the film which adheres to the underlying selected cells, which are selectively procured when the film is removed. Drawbacks of LCM include less than 100% transfer of cells to the EVA film, a glass surface that must be specially prepared so as to facilitate tissue lift-off, and a ragged border between irradiated and non-irradiated regions (i.e., low contrast). Because the entire EVA film is transferred from the slide surface to a reaction tube, there is the potential for contamination of the non-irradiated EVA with tissue fragments. The latter is a significant disadvantage when sensitive amplification methods for detection are employed (e.g., PCR). Also, cumbersome automation and robotics are required in the transfer process resulting in a high system cost. Another disadvantage is a resolution limited by the wavelength of the infrared laser (.about.10 microns) which precludes microdissection of subcellular components.

DEPR:
The photoresist may be reactive to infrared, electron beam, x-ray or any other irradiation. A suitable electron beam resist includes, for example, EB-9 polymethacrylate available from Hoya.TM.. The photoresist may be, for example, a polymer, thermoplastic, dye-sensitized polymer, or dye-sensitized thermoplastic that may be photoablated at a particular wavelength of light. Such compounds include, for example, polycarbonate and polyethyleneterephthalate which may be photoablated either by infrared or ultraviolet radiation directly (see Sonnenschein and Roland, Appl. Phys. Lett. 57(5):425, 1990 and Oldershaw, Chem. Phys. Lett. 186:23, 1991). The conjugated organic polymers known as polydiacetylenes may be photoablated in the visible part of the spectrum (see Lemoire and Blau, Microelectronics Eng. 13:447, 1991). Alternatively, photoablation may be achieved using a polymer-dye composite where the dye assists in absorbing radiant energy of a particular wavelength. Such dyes include, for example, polyester yellow ([p-(dialkylamino) benzylidene] malononitrile), polymethine dyes, carbocyanine dye NK1748, and squarylium (see Law and Johnson, J. Appl. Phys. 54(9):4799, 1983; Murthy et al., J. Appl. Polymer Sci. 31:2331, 1986; Law and Vincett, Appl. Phys. Lett. 39(9) :718, 1981; and Jipson and Jones, J. Vac. Sci. Technol. 18(1):105), 1981. Other methods may be used including, for example, exposure to a current source. For example, organosulfur redox polymers may be electrically depolymerized into monomers (e.g., dimercapto dithiazole) exposing discrete regions of biologic material on a microfabricated electrode array (see Liu et al., J. Electrochem. Soc. 138(7):1896, 1991). It may be desirable in some embodiments to utilize one or more photoresists sensitive to different wavelengths of light so as to, for example, select different regions based on the regional application of photoresists to the substrate.

DEPR:
This Example illustrates the capability of the present invention to detect deleted DNA compositions from minute regions embedded in normal tissue. Functional loss of essential tumor suppressors is a key mechanism in the stepwise progression of cancer. Loss usually occurs by deletion of at least one tumor suppressor gene together with megabases of adjacent DNA. Deletion of the tumor suppressor gene may be indirectly detected using a linked microsatellite marker. Microsatellites are polymorphic markers containing a variable number of repeats. Marker heterozygosity occurs when maternal and paternal alleles have a different number of repeats. Loss of heterozygosity (LOH) is seen when a tumor suppressor gene is deleted together with the adjacent microsatellite marker, and the cell is left with a single microsatellite allele. Occasionally, a homozygous deletion occurs, leaving no alleles.

and poly methacrylate blended with acrylic acid and acrylic ester copolymers. Other exemplary materials are described in EP612,520 A2 entitled "pH Triggered Osmotic Bursting Delivery Devices," which is incorporated herein by reference.

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

☑ 4. Document ID: US 6007999 A

L21: Entry 4 of 9 File: USPT Dec 28, 1999

DOCUMENT-IDENTIFIER: US 6007999 A
TITLE: Reversible flow chromatographic binding assay

BSPR:
Dafforn et al. (Clin. Chem. 36: 1312, 1990) report an immunoassay for HIV antibody detection. Latex microspheres coated with antigen are embedded in the fibers of a wick; a human serum sample, applied to the wick, migrates downstream (by capillary action) contacting the antigen. Crushing of a substrate ampule releases substrate into a sponge (located upstream of the sample entry port). When saturated, the sponge expands to contact the wick, and substrate is slowly transported into the wick. Simultaneous to substrate release, a protein-A-enzyme conjugate solution is manually added to the wick downstream of the sample entry port. Slow release of the substrate by the sponge allows time for conjugate reaction with the immobilized antibody-antigen complex. Complexes are detected by color reaction.

DEPR:
The flow matrix material preferably possesses the following characteristics: 1 low non-specific affinity for sample materials and labelled specific binding reagents, 2 ability to transport a liquid by capillary action over a distance with a consistent liquid flow across the matrix, and 3 ready binding to immobilized specific binding reagents, (e.g., by covalent or non-covalent attachment or by physical entrapment). Materials possessing these characteristics include fibrous mats composed of synthetic or natural fibers (e.g., glass or cellulose-based materials or thermoplastic polymers, such as, polyethylene, polypropylene, or polyester); sintered structures composed of particulate materials (e.g., glass or various thermoplastic polymers); or cast membrane films composed of nitrocellulose, nylon, polysulfone or the like (generally synthetic in nature). The invention may utilize a flow matrix composed of sintered, fine particles of polyethylene, commonly known as porous polyethylene; preferably, such materials possess a density of between 0.35 and 0.55 grams per cubic centimeter, a pore size of between 5 and 40 microns, and a void volume of between 40 and 60 percent. Particulate polyethylene composed of cross-linked or ultra high molecular weight polyethylene is preferable. A flow matrix composed of porous polyethylene possesses all of the desirable features listed above, and in addition, is easily fabricated into various sizes and shapes. A particularly preferred material is 10-15 micron porons polyethylene from Chromex Corporation FN# 38-244-1 (Brooklyn, N.Y.).

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

☑ 5. Document ID: US 5928918 A

L21: Entry 5 of 9 File: USPT Jul 27, 1999

high molecular weight polyethylene is preferable. A flow matrix composed of porous polyethylene possesses all of the desirable features listed above, and in addition, is easily fabricated into various sizes and shapes. A particularly preferred material is 10-15 micron porons polyethylene from Chromex Corporation FN# 38-244-1 (Brooklyn, N.Y.).

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

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☑ 7. Document ID: US 5726013 A

L21: Entry 7 of 9 File: USPT Mar 10, 1998

DOCUMENT-IDENTIFIER: US 5726013 A
TITLE: Reversible flow chromatographic binding assay system, kit, and method

BSPR:
Dafforn et al. (Clin. Chem. 36:1312, 1990) report an immunoassay for HIV antibody detection. Latex microspheres coated with antigen are embedded in the fibers of a wick; a human serum sample, applied to the wick, migrates downstream (by capillary action) contacting the antigen. Crushing of a substrate ampule releases substrate into a sponge (located upstream of the sample entry port). When saturated, the sponge expands to contact the wick, and substrate is slowly transported into the wick. Simultaneous to substrate release, a protein-A-enzyme conjugate solution is manually added to the wick downstream of the sample entry port. Slow release of the substrate by the sponge allows time for conjugate reaction with the immobilized antibody-antigen complex. Complexes are detected by color reaction.

DEPR:
The flow matrix material preferably possesses the following characteristics: 1 low non-specific affinity for sample materials and labelled specific binding reagents, 2 ability to transport a liquid by capillary action over a distance with a consistent liquid flow across the matrix, and 3 ready binding to immobilized specific binding reagents, (e.g., by covalent or non-covalent attachment or by physical entrapment). Materials possessing these characteristics include fibrous mats composed of synthetic or natural fibers (e.g., glass or cellulose-based materials or thermoplastic polymers, such as, polyethylene, polypropylene, or polyester); sintered structures composed of particulate materials (e.g., glass or various thermoplastic polymers); or cast membrane films composed of nitrocellulose, nylon, polysulfone or the like (generally synthetic in nature). The invention may utilize a flow matrix composed of sintered, fine particles of polyethylene, commonly known as porous polyethylene; preferably, such materials possess a density of between 0.35 and 0.55 grams per cubic centimeter, a pore size of between 5 and 40 microns, and a void volume of between 40 and 60 percent. Particulate polyethylene composed of cross-linked or ultra high molecular weight polyethylene is preferable. A flow matrix composed of porous polyethylene possesses all of the desirable features listed above, and in addition, is easily fabricated into various sizes and shapes. A particularly preferred material is 10-15 micron porons polyethylene from Chromex Corporation FN#38-244-1 (Brooklyn, N.Y.).

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

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☑ 8. Document ID: US 5726010 A

L21: Entry 8 of 9 File: USPT Mar 10, 1998

DOCUMENT-IDENTIFIER: US 5726010 A
TITLE: Reversible flow chromatographic binding assay

BSPR:
Dafforn et al. (Clin.. Chem. 36:1312, 1990) report an immunoassay for HIV antibody detection. Latex microspheres coated with antigen are embedded in the fibers of a wick; a human serum sample, applied to the wick, migrates downstream (by capillary action) contacting the antigen. Crushing of a substrate ampule releases substrate into a sponge (located upstream of the sample entry port). When saturated, the sponge expands to contact the wick, and substrate is slowly transported into the wick. Simultaneous to substrate release, a protein-A-enzyme conjugate solution is manually added to the wick downstream of the sample entry port. Slow release of the substrate by the sponge allows time for conjugate reaction with the immobilized antibody-antigen complex. Complexes are detected by color reaction.

DEPR:
The flow matrix material preferably possesses the following characteristics: (1) low non-specific affinity for sample materials and labelled specific binding reagents, (2) ability to transport a liquid by capillary action over a distance with a consistent liquid flow across the matrix, and (3) ready binding to immobilized specific binding reagents, (e.g., by covalent or non-covalent attachment or by physical entrapment). Materials possessing these characteristics include fibrous mats composed of synthetic or natural fibers (e.g., glass or cellulose-based materials or thermoplastic polymers, such as, polyethylene, polypropylene, or polyester); sintered structures composed of particulate materials (e.g., glass or various thermoplastic polymers); or cast membrane films composed of nitrocellulose, nylon, polysulfone or the like (generally synthetic in nature). The invention may utilize a flow matrix composed of sintered, fine particles of polyethylene, commonly known as porous polyethylene; preferably, such materials possess a density of between 0.35 and 0.55 grams per cubic centimeter, a pore size of between 5 and 40 microns, and a void volume of between 40 and 60 percent. Particulate polyethylene composed of cross-linked or ultra high molecular weight polyethylene is preferable. A flow matrix composed of porous polyethylene possesses all of the desirable features listed above, and in addition, is easily fabricated into various sizes and shapes. A particularly preferred material is 10-15 micron porons polyethylene from Chromex Corporation FN# 38-244-1 (Brooklyn, N.Y.).

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

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☐ 9. Document ID: US 5447864 A

L21: Entry 9 of 9 File: USPT Sep 5, 1995

DOCUMENT-IDENTIFIER: US 5447864 A
TITLE: Capture method for cell nucei using a DNA mesh

BSPR:
For very delicate, large constructions of DNA such as yeast artificial chromosomes it is crucially important to prevent any breakage during handling. This is done by embedding the DNA within agarose blacks so that it is supported at all times. These agarose plugs can then be placed on an agarose gel and electrophoresis performed as normal for very large DNA samples. [Smith, D. R. et al. P.N.A.S. 87 8242-8246, 1990].

BSPR:
The device comprises a tube 10 the bore 11 of which decreases in diameter along its length towards its forward end 12. The forward end face of the tube has an annular pip 13 for the attachment of a permeable membrane or other filter element extending across the bore and selected according to the nature of the nuclei to be captured. The pip has in this construction a triangular cross-section. A line of weakening in the form of a peripheral groove 14 is formed in the wall of the tube at a selected distance from the forward end. In its rearward end portion 15 the external surface of the tube is cylindrical and has a series of axial stiffening ribs 16 to enable that end of the tube to be secured in a friction fit on the end of a micro-pipette. The tube is made from a transparent and brittle thermoplastic plastics material. Polycarbonate is particularly suitable for this purpose.

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Search Results - Record(s) 1 through 4 of 4 returned.

☑ 1. Document ID: US 6022748 A

L3: Entry 1 of 4 File: USPT Feb 8, 2000

DOCUMENT-IDENTIFIER: US 6022748 A
TITLE: Sol-gel matrices for direct colorimetric detection of analytes

DEPR:
In some embodiments, ligands are incorporated to detect a variety of bacteria and pathogens including, but not limited to, sialic acid to detect HIV (Wies et al., Nature 333: 426 [1988]), influenza (White et al., Cell 56: 725 [1989]), chlamydia (Infect. Imm. 57: 2378 [1989]), reovirus, Streptococcus suis, Salmonella, Sendai virus, mumps, newcastle, myxovirus, and Neisseria meningitidis; 9-OAC sialic acid to detect coronavirus, encephalomyelitis virus, and rotavirus; non-sialic acid glycoproteins to detect cytomegalovirus (Virology 176: 337 [1990]) and measles virus (Virology 172: 386 [1989]); CD4 (Khatzman et al., Nature 312: 763 [1985]), vasoactive intestinal peptide (Sacerdote et al., J. of Neuroscience Research 18: 102 [1987]), and peptide T (Ruff et al., FEBS Letters 211: 17 [1987]) to detect HIV; epidermal growth factor to detect vaccinia (Epstein et al., Nature 318: 663 [1985]); acetylcholine receptor to detect rabies (Lentz et al., Science 215: 182 [1982]); Cd3 complement receptor to detect Epstein-Barr virus (Carel et al., J. Biol. Chem. 265: 12293 [1990]); .beta.-adrenergic receptor to detect rheovirus (Co et al., Proc. Natl. Acad. Sci. 82: 1494 [1985]); ICAM-1 (Marlin et al., Nature 344: 70 [1990]), N-CAM, and myelin-associated glycoprotein MAb (Shephey et al., Proc. Natl. Acad. Sci. 85: 7743 [1988]) to detect rhinovirus; polio virus receptor to detect polio virus (Mendelsohn et al., Cell 56: 855 [1989]); fibroblast growth factor receptor to detect herpesvirus (Kaner et al., Science 248: 1410 [1990]); oligomannose to detect Escherichia coli; ganglioside G.sub.M1 to detect Neisseria meningitidis; and antibodies to detect a broad variety of pathogens (e.g., Neisseria gonorrhoeae, V. vulnificus, V. parahaemolyticus, V. cholerae, and V. alginolyticus).

DEPR:
For encapsulating liposomes, a polymerized liposome solution (2.5 mL) (as generated in Example 1) was then mixed into the buffered sol (10 mL) and the mixture poured into plastic cuvettes, applied as a film on a flat surface, or poured into any other desired formation template, sealed with Parafilm, and allowed to gel at ambient temperature. Gelation of the samples occurred within a few minutes resulting in transparent, monolithic solids (18 mm.times.10 mm.times.5 mm) in the case of cuvette formed gels and as violet colored monoliths with p-PDA liposomes. Slight shrinkage of aged monoliths was observed due to syneresis.

ORPL:
Eppstein et al., "Epidermal growth factor receptor occupancy inhibits vaccinia virus infection," Nature 318: 663-665 [1985].

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

☑ 2. Document ID: US 5102872 A

L3: Entry 2 of 4 File: USPT Apr 7, 1992

DOCUMENT-IDENTIFIER: US 5928918 A
TITLE: Preparation of a hydrophobic polymer matrix containing immobilized enzymes

BSPV:
(d) Enzyme microdomains in an uncured polymer, prepared by dissolving enzymes in polymer water latices, the mostly high-molecular polymer being converted by the addition of plasticizer-type filming agents on drying into a largely homogeneous thermoplast film in which enzyme microdroplets are dispersed (see for instance polymer dispersion in WO 89/07139).

CLPV:
c) evaporating said aqueous solvent to form a three-dimensional cross-linked hydrophobic polymer matrix having said enzyme embedded therein.

CLPV:
c) evaporating said aqueous solvent to form a three-dimensional cross-linked hydrophobic polymer matrix having said enzyme embedded therein.

CLPV:
c) evaporating said aqueous solvent to form a three-dimensional cross-linking hydrophobic polymer matrix having said enzyme embedded therein.

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

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☐ 6. Document ID: US 5750333 A

L21: Entry 6 of 9 File: USPT May 12, 1998

DOCUMENT-IDENTIFIER: US 5750333 A
TITLE: Reversible flow chromatographic binding assay

BSPR:
Dafforn et al. (Clin. Chem. 36:1312, 1990) report an immunoassay for HIV antibody detection. Latex microspheres coated with antigen are embedded in the fibers of a wick; a human serum sample, applied to the wick, migrates downstream (by capillary action) contacting the antigen. Crushing of a substrate ampule releases substrate into a sponge (located upstream of the sample entry port). When saturated, the sponge expands to contact the wick, and substrate is slowly transported into the wick. Simultaneous to substrate release, a protein-A-enzyme conjugate solution is manually added to the wick downstream of the sample entry port. Slow release of the substrate by the sponge allows time for conjugate reaction with the immobilized antibody-antigen complex. Complexes are detected by color reaction.

DEPR:
The flow matrix material preferably possesses the following characteristics: 1 low non-specific affinity for sample materials and labelled specific binding reagents, 2 ability to transport a liquid by capillary action over a distance with a consistent liquid flow across the matrix, and 3 ready binding to immobilized specific binding reagents, (e.g., by covalent or non-covalent attachment or by physical entrapment). Materials possessing these characteristics include fibrous mats composed of synthetic or natural fibers (e.g., glass or cellulose-based materials or thermoplastic polymers, such as, polyethylene, polypropylene, or polyester); sintered structures composed of particulate materials (e.g., glass or various thermoplastic polymers); or cast membrane films composed of nitrocellulose, nylon, polysulfone or the like (generally synthetic in nature). The invention may utilize a flow matrix composed of sintered, fine particles of polyethylene, commonly known as porous polyethylene; preferably, such materials possess a density of between 0.35 and 0.55 grams*per cubic centimeter, a pore size of between 5 and 40 microns, and a void volume of between 40 and 60 percent. Particulate polyethylene composed of cross-linked or ultra high molecular weight polyethylene is preferable. A flow matrix composed of

3. Document ID: US 6093869 A

L21: Entry 3 of 9 File: USPT Jul 25, 2000

DOCUMENT-IDENTIFIER: US 6093869 A
TITLE: Disposable article having a responsive system including a feedback control loop

DEPR:
The backsheet 26 is generally that portion of the article 20 positioned adjacent the garment facing surface 45 of the absorbent core 28 which prevents the exudates absorbed and contained therein from soiling articles which may contact the article 20, such as bedsheets and undergarments. In preferred embodiments, the backsheet 26 is impervious to liquids (e.g., urine) and comprises a thin plastic film such as a thermoplastic film having a thickness of about 0.012 mm (0.5 mil) to about 0.051 mm (2.0 mils). Suitable backsheet films include those manufactured by Tredegar Industries Inc. of Terre Haute, Ind. and sold under the trade names X15306, X10962 and X10964. Other suitable backsheet materials may include breathable materials which permit vapors to escape from the article 20 while still preventing exudates from passing through the backsheet 26. Exemplary breathable materials may include materials such as woven webs, nonwoven webs, composite materials such as film-coated nonwoven webs, and microporous films such as manufactured by Mitsui Toatsu Co., of Japan under the designation ESPOIR NO and by EXXON Chemical Co., of Bay City, Tex., under the designation EXXAIRE. Suitable breathable composite materials comprising polymer blends are available from Clopay Corporation, Cincinnati, Ohio under the name HYTREL blend P18-3097. Such breathable composite materials are described in greater detail in PCT Application No. WO 95/16746, published on Jun. 22, 1995 in the name of E. I. DuPont and copending U.S. patent application Ser. No. 08/744,487, filed on Nov. 6, 1996 in the name of Curro. Other breathable backsheets including nonwoven webs and apertured formed films are described in U.S. Pat. No. 5,571,096 issued to Dobrin et al. on Nov. 5, 1996. Each of these references is hereby incorporated by reference herein. In some embodiments such as an insert for article 20, however, the backsheet may be liquid pervious and may, for example, include the same materials as described with respect to topsheet 24 below.

DEPR:
In yet another embodiment, a pH control agent may be embedded in a film or granules, or held under a film of a pH-sensitive material that is insoluble, i.e., a solid, below a predefined pH (e.g., less than a pH of about 6.0), but soluble above that pH level. Upon detection of the threshold pH level or above, the pH-sensitive embedding or overlying material dissolves, releasing the pH control agent to treat the waste and/or the skin of the wearer. In the case of the embedded pH control agent, the responsive system releases the agent in a continuous manner as the embedding material dissolves. In the case of the pH control agent being held under a film, the responsive system releases the agent in a discontinuous manner after the film has dissolved. A pH control agent may be a buffer, a pH decreasing agent, e.g., an acid, or a pH increasing agent, e.g., a base. A variation of this embodiment may include a substrate that will result in a pH change upon hydrolysis by one or more target enzymes that may be present in a bodily waste such as feces, urine or menses. When the target enzyme reacts with the substrate, the reaction creates a pH change that may react with a pH sensitive material similar to the one described above to release a pH control agent. An enzyme inhibitor may also be embedded in the pH-sensitive material. Presence of the target enzyme, e.g., a fecal enzyme, may result in the conversion of the substrate and a change in pH, resulting in the dissolution of the pH-sensitive material and release of the enzyme inhibitor to treat the feces or the skin of the wearer. Exemplary pH sensitive materials are known in the art and include polyacrylamides, phthalate derivatives, formalized gelatin, shellac, keratin, cellulose derivatives, e.g., oxidized cellulose, and polyacrylic acid derivatives. Preferred materials include cellulose acetate phthalate, vinyl acetate, polyvinyl acetate phthalate, hydroxy propyl methyl cellulose phthalate and poly methacrylate blended with acrylic acid and acrylic ester copolymers.

DB Name	Query	Hit Count	Set Name
USPT	l10 and l20	9	L21
USPT	l19 near5 embed$	508	L20
USPT	antigen or antibody or enzyme or dna or rna or cdna or nucleic or nucleotide or ligand or analyte	115153	L19
USPT	l17 and (antigen or antibodies or dna or enzyme or ligand or analyte)	56	L18
USPT	l10 same embed$	3231	L17
USPT	l14 and (antigen or antibodies or dna or enzyme or ligand or analyte)	336	L16
USPT	l14 and (antigen or antibodies or dna or enzyme or ligand or analyte or target or binding)	1832	L15
USPT	l10 and embed$	12811	L14
USPT	l12 and (antigen or antibody or dna or enzyme or cell)	24	L13
USPT	l11 near25 even$	192	L12
USPT	l10 near25 dispers$	6870	L11
USPT	(thermoplast$ or thermo-plast$)	125765	L10
USPT	(thermoplast$ or thermo-plast$) same antigen$	13	L9
USPT	(thermoplast$ or thermo-plast$) same vaccin$	1	L8
USPT	(thermoplast$ or thermo-plast$) same vaccin$	1	L7
USPT	l1 near25 assay$	7	L6
USPT	l1 near25 vaccin$	0	L5
USPT	l2 and immunoa$	6	L4
USPT	l2 and vaccin$	4	L3
USPT	l1 near5 solid$	1132	L2
USPT	monolithic or mono-lithic	32974	L1

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Terms	Documents
l10 and l20	9

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